

Ludicrous speed

6th April 2020

“DONOVAN: Rudolf.. is there not the possibility –
ABEL: That my people are going to shoot me ?
DONOVAN: Well.. yes. You’re not worried ?
ABEL: Would it help ?”

- *Bridge of Spies*, script by Matt Charman and Ethan Coen and Joel Coen.

“The EU has been at war. It has been at war with the wrong enemy: CO2. Billions have been spent based on unfounded fears of catastrophic global warming. People were “nudged” into diesel vehicles which we are told will kill 40,000 people a year in the UK alone. Where’s the lockdown to stop that ? The pollution in northern Italy is apparently as bad as China and that is likely a factor in the high death rates and the higher incidence of respiratory illness in that region. That pollution is not CO2; CO2 is not a pollutant. It is entirely natural and the building block for all life on earth.

“If a fraction of the money had been spent on pandemic preparedness and health care that has been spent on fearmongering over CO2, many lives could have been saved. It is worse than that. The complacency around Covid-19 is partly the result of crying wolf over the end of the world from CO2. Apocalyptic language has been normalised in politics. One of the first casualties of that hysteria is that scientists have lost credibility with the public.”

- Comment in response to Larry Elliott’s [‘The coronavirus crisis has brought the EU’s failings into sharp relief’](#), *The Guardian*, 29 March 2020.

“Col. Sandurz: Prepare ship for light speed!
Dark Helmet: No, no, no, light speed is too slow!
Col. Sandurz: Light speed, too slow?!”

Dark Helmet: Yes, we're gonna have to go right to...ludicrous speed!

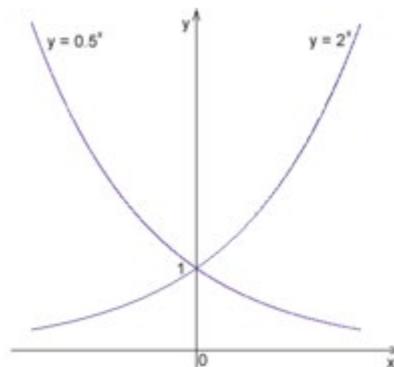
Col. Sandurz: Ludicrous speed?! Sir, we've never gone that fast before. I don't know if the ship can take it.

Dark Helmet: What's the matter Colonel Sandurz? Chicken?"

- From Mel Brooks' *Spaceballs*, writers Mel Brooks, Thomas Meehan and Ronny Graham.

Readers with a spare hour on their hands – and these days, who hasn't ? – may wish to watch [this short film](#) by the late Professor Albert Bartlett of the University of Colorado at Boulder. Its official title is 'Arithmetic, Population and Energy' but it is just as accurately described on YouTube as the most important video you'll ever see.

Professor Bartlett's essential point is that mankind's biggest failing is our inability to understand the power of the exponential function: the power of compound interest, if you prefer, or of something growing at a fixed percentage over time. The graphs below show exponential curves.



Source: [Wikipedia](#)

Exponential growth could be manifest within the population of a city, or the number of spectators at a football match. But anything that grows by a fixed percentage over time is subject to the magical-seeming laws of compounding, what Albert Einstein allegedly referred to as the eighth wonder of the world.

Bartlett himself cites the example of bacteria growing in a bottle. At 11 o'clock in the morning, he suggests, the bottle is completely empty, bar one bacterium. An hour later, at mid-day, the bottle is completely full of bacteria. The 'doubling time' – the time it takes for the number of bacteria inside the bottle to double – is one minute. Question: at what time is the bottle half full ?

The answer may surprise you: one minute to 12 o'clock. Such is the power of compounding.

Another of Bartlett's examples of exponential growth is well known. The inventor of the game of chess takes his creation to the King, who is overwhelmed by it. "Name your price," suggests the monarch, looking to offer an adequate reward for the gift. "My needs are modest," replies the inventor. "Just give me a grain of rice on the first square of the chess board, and then two grains of rice on the second, and then four grains of rice on the third.."

"You idiot!" replies the King. "You could have had anything under the sun, and you've chosen a few handfuls of rice."

The King is clearly no master of the exponential function. He fails to appreciate that by the time we've reached square 64, we've accumulated more rice than the entire global rice harvest.

The exponential function invariably surprises. It involves sudden shocking bursts of growth after long periods of apparent calm and only modest rises in supply or price. What applies to bacteria growing in a bottle, or grains of rice steadily accumulating on a chess board, also applies to the human population on our planet, or to the world's natural resources. The exponential function always ultimately becomes a collision between constant growth and finite constraints.

"Can you think," Bartlett goes on to ask, "of any problem in any area of human endeavour on any scale, from microscopic to global, whose long term solution is in any demonstrable way aided, assisted or advanced by further increases in population locally, nationally or globally?"

At some point in the future, the human population of the world will run into practical limits imposed by our planet's carrying capacity. The world is finite. Population growth clearly cannot become infinite.

As Bartlett states, equally starkly, "Continued growth past maturity for any entity becomes obesity or cancer."

Warren Buffett, in his letter to shareholders of Berkshire Hathaway for 1989, also touched on the power of the exponential function:

In a finite world, high growth rates must self-destruct. If the base from which the growth is taking place is tiny, this law may not operate for a time. But when the base balloons, the party ends: A high growth rate eventually forges its own anchor.

The late Carl Sagan entertainingly described this phenomenon, musing about the destiny of bacteria that reproduce by dividing into two every 15 minutes. Says Sagan: "That means four doublings an hour, and 96 doublings a day. Although a bacterium weighs only about a trillionth of a gram, its descendants, after a day of wild asexual abandon, will collectively weigh as much as a mountain...in two days, more than the sun - and before very long, everything in the universe will be made of bacteria." Not to worry, says Sagan: Some obstacle always impedes this kind of exponential growth. "The bugs run out of food, or they poison each other, or they are shy about reproducing in public."

Albert Bartlett was primarily concerned with the scarcity of natural resources and the limits of physical infrastructure when faced with a human population growing at an exponential rate.

But the exponential function isn't just relevant to population growth. The power of compounding has a deadly relevance to the financial world, most notably to the decades-long build-up of a mountain of sovereign debt.

In the aftermath of the Global Financial Crisis, a story somehow got about that governments had started to whittle down that mountain of debt. That they had, in financial parlance, started to “delever” – i.e. pay down their accumulated debts. But as the McKinsey Global Institute pointed out in their research note of February 2015, ‘Debt and (not much) deleveraging’, the idea of governments suddenly becoming fiscally responsible after the Crash was a complete myth. The terrible reality is that since 2007, at the time of the McKinsey study, global debt levels had actually grown by some \$57 trillion. Since the global debt mountain was already unpayable back in 2007, the fact that it has subsequently expanded, and not shrunk, should serve as a warning – to governments and investors alike. There are limits to exponential growth.

The bond market has just bumped up against those limits.

Credit analyst [Doug Noland](#):

What commenced with Alan Greenspan's market-supporting assurances of liquidity and asymmetric rate policy this week took a dreadful turn for the worse: Open-end QE, PMCCF, SMCCF, MMLF, CPFF, MSBLP, TALF... They're going to run short of acronyms. Our central bank has taken the plunge into buying corporate bond ETFs, with equities ETFs surely not far behind. The Fed's balance sheet expanded \$586 billion – in a single week (\$1.1 TN in four weeks!) – to a record \$5.25 TN. Talk has the Fed's new “Main Street Business Lending Program” leveraging \$400 billion of (this week's \$2.2 TN) fiscal stimulus into a \$4.0 TN lending operation. Having years back unwaveringly set forth, the ride down the slippery slope of inflationism has reached warp speed careening blindly toward a brick wall.

Ben Bernanke, appearing on CNBC, March 25, 2020: “Low interest rates are not - and I know some of you will be skeptical - but it's just a fact that low interest rates around the world are not primarily a monetary policy phenomenon. Interest-rates around the world have been declining since the eighties. And if you look at the 10-year Treasury yield since 1980 from then till now – 40 years – it looks like a ski slope. The rate just keeps coming down and down and down. And as I've talked about before, I think what we have in the world now is a global savings glut. Longer life spans, rising incomes and for a variety of reasons there's a lot of savings in the world. Any asset manager will tell you that – and it's hard to find good uses for that money – hard to find good capital projects. Even when monetary policy is at a normal level - and we got pretty close to a normal level when the Fed was raising rates earlier - interest-rates are going to be much lower than in the past. So low interest rates are something we're going to have to live with for a while very likely. And we have to be very alert about financial risk. The Fed is looking at that at much more detail than we used to. But, again, it's not a monetary policy thing. It's a long-term trend.”

The Fed “very alert about financial risk”? What exactly has the Fed been “looking at at much more detail”? Financial excess? Speculative leveraging? Mounting vulnerabilities in the derivatives complex, the ETF universe, corporate leverage? Global hedge fund leverage? Highly levered mortgage companies? We’ve now witnessed two historic bouts of market illiquidity and dislocation – exposing massive speculative leveraging – and Dr. Bernanke sticks resolutely with his “global savings glut” thesis. Central banks have during this cycle created more than \$16 TN of new “money,” for heaven’s sake. Of course it’s been “a monetary policy thing..”

The economic damage wreaked by the global spread of the Covid-19 virus and the attendant lockdowns is bad enough. The economic damage to come wreaked by the governmental and central bank response could easily be worse.

What stage of quarantine are you in?



Hat-tip to O&G OG (@EnergyCredit1)



Source: *The Daily Telegraph*

Our conclusions ?

- The bond game isn't worth the candle any more. (Hasn't been for years.)
- Whether you seek protection from disorderly financial markets or latent inflation or looming currency distress, gold and sensibly priced, unlevered gold miners are now go-to assets – if you can access them.
- If in doubt (and these days, who isn't ?), diversify.

Governments and central banks have elected to crank up monetary and fiscal policy, almost immediately, to ludicrous speed. Strap yourselves in and enjoy the ride.

Clients and interested parties are welcome to contact us to discuss strategy and our thoughts at any time. Meanwhile, we will continue to provide regular commentary in formats like this, as well as in the [State of the Markets podcasts](#).

As before, we conclude with a line from the 1980s police drama *Hill Street Blues*:

Hey, let's be careful out there.

Sincerest best wishes to all readers.

Tim Price is co-manager of the [VT Price Value Portfolio](#) and author of 'Investing through the Looking Glass: a rational guide to irrational financial markets'. You can access a full archive of these weekly investment commentaries [here](#). You can listen to our regular 'State of the Markets' podcasts, with Paul Rodriguez of ThinkTrading.com, [here](#). Email us: info@pricevaluepartners.com.

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